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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/620,436

07/17/2003

Takanobu Higuchi

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09/26/2006

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EXAMINER

DINH, TAN X

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,436

Applicant(s)

HIGUCHI ET AL.

Examiner

TAN X. DINH

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

1) The amendment filed 7/17/2006 is acknowledged. Claims 10 and 11 have been canceled.

2) The drawings were received on 7/17/2006. These drawings are acceptable.

3) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

4) (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5) Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by TAKAGI et al (4,519,064).

TAKAGI et al discloses an optical recording medium as claimed in claim 1, comprising:

a substrate comprises a recording surface provided with a phase pit array for holding information (Fig.4, substrate 301);

a reflective layer formed on the recording surface (Fig.4, reflective layer 305); and

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a protective layer formed on the reflective layer (Fig.4, protective layer 308), wherein each phase pit of the phase pit array is a cavity which is a reentrant as viewed from the entrance side of a reading laser beam so that the reflective layer has reentrants respectively corresponding to phase pit array (Fig.4, reading beam 303, information cavity pits 304, 307, reflective layer 305 has reentrants respectively corresponding to phase pit array 307).

6) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7) This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8) Claims 2-9 *and* 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKAGI et al (4,519,064).

TAKAGI et al discloses all the subject matter as claimed in claims 2,3,12 and 13, except to specifically show that the thickness of the reflective layer is less in the inner face of the recess of each phase pit of the phase pit array than in other parts and same thickness in direction perpendicular to principle plane of substrate. However, the technique of using a reflective layer of thickness less in the inner face of the recess of each phase pit of the phase pit array than in other parts and same thickness in direction perpendicular to principle plane of substrate are old and widely used in the optical recording art (evidence in KATO, US 6,975,577, figure 1, reflective layer 5; NOBUMASA et al, US 6,071,588, figure 1, reflective layer or NAGATA et al, US 5,410,534, figure 2a, reflective layer 3). Therefore, someone within the level of skill in the art at the time of the invention was made to apply this technique in TAKAGI et al's optical recording medium as claimed.

As to claims 4 and 14, the feature of using protective layer (transparent layer) of 0.1 ± 0.03 mm is old and well known in optical recording art (See WATANABE et al, US 5,838,646, figure 2, protective layer (transparent layer) has thickness of 0.01mm - 0.6mm).

TAKAGI et al discloses an optical recording medium as claimed in claim 9, comprising a substrate comprises a recording surface provided with a phase pit array for holding information (Fig.4, substrate 301), a reflective layer formed on the recording surface (Fig.4, reflective layer 305), a protective layer formed on the reflective layer (Fig.4, protective layer 308), wherein each phase pit of the phase pit array is a cavity which is a reentrant as viewed from the entrance side of a reading laser beam so that the reflective layer has reentrants respectively corresponding to phase pit array (Fig.4, reading beam 303, information cavity pits 304, 307, reflective layer 305 has reentrants respectively corresponding to phase pit array 307), except to specifically show the reading laser beam having wavelength of 405 ± 5 nm with NA of 0.80 or more. However, the feature of using short wavelength laser beam, such as 405 ± 5 nm and large numerical aperture (NA) such as 0.80 or more for increasing the recording capacity are old and widely used in the art (See WATANABE et al, US 5,838,646, abstract). Obviously, one of ordinary skill in the art at the time of the invention was made would have been motivated

to use short wavelength laser beam and large numerical aperture in TAKAGI et al's optical recording medium in order to increasing the capacity of storing information data as claimed.

Claim 5 is rejected with the same reasons set forth in claim 9 above.

As to claims 6 and 15, TAKAGI et al shows the maximum value of the reflectance of the reflective layer with respect to the reading laser beam that is subjected to modulation according to the phase pit is in the range of at least 10% and no more than 25% (column 5, lines 32-39).

As to claims 7,8,16 and 17, the technique of using a reflective layer comprises alloy principle components of Ag or Al and at least one of Pd, Ti, Cr, Zn, Cu, Si, etc., and thickness of less than 14nm are old and well known in the optical recording art (evidence in NOBUMASA et al, US 6,071,588, column 6, line 66 to column 7, line 38).

9) Applicant's arguments filed 7/17/2006 have been fully considered but they are not persuasive.

Applicant states that the reference of TAKAGI et al did not show or suggest the feature of " an arrangement in which a reflective layer has reentrants respectively corresponding to cavities on a recording surface, as described in newly-amended independent claims 1 and 9 ". .

the features as indicated in column 1, lines 8-12 is just a background prior art of TAKAGI et al's invention. As seen in figures 3,4 and column 3, lines 1-40, the pits 307 is covered with reflective layer so that the reproducing signal can be reflected back to photo-detectors for processing. Without reflecting layer the reproducing cannot be processed since the photo-detectors receives no signals. For that reasons, the claims are still rejectable as shown above.

10) THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11) Any inquiry concerning this communication or earlier

communications from the examiner should be directed to TAN XUAN DINH whose telephone number is (571)272-7586. The examiner can normally be reached on MONDAY to FRIDAY from 9:00AM to 5:00PM.

The FAX phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866)217-9197 (toll-free).



TAN DINH
PRIMARY EXAMINER

September 21, 2006